List of Current Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1 - 9 (Cancelled).

10. (New) A device for determining and/or monitoring volume flow and/or mass flow of a medium flowing through a pipeline in a stream direction comprising:

at least two ultrasonic transducers, which emit ultrasonic measuring signals into the pipeline and receive ultrasonic measuring signals from the pipeline; and

a control/evaluation unit, which ascertains the volume- and/or mass-flow of the medium in the pipeline on the basis of the travel-time difference of the ultrasonic measuring signals in the stream direction (S; Up) and counter to the stream direction, wherein:

said control/evaluation unit ascertains a plurality of sampled values (a_i with i = 1, 2, 3, ...) of a received measuring signal at defined points in time (t) of a predetermined time range, interpolates the predetermined time range of the measuring signal by a continuous function (f(t)), the continuous function (f(t)) being formed by a sum of a predetermined number ($n \in N$) of wavelets (W), wherein each wavelet (W) corresponds to the product of a sampled value with a sine function ($\frac{\sin(x)}{x}$) and with a Gaussian bell curve ($e^{-\alpha x^2}$, $\alpha \in R$).

11. (New) The device as claimed in claim 10, wherein:

said control/evaluation unit determines between the sampled values at least one additional sampled value and approximates this additional sampled value, respectively these additional sampled values, by the continuous function, the continuous function being formed by a sum of a predetermined number ($n \in N$) of wavelets (W), each wavelet (W) corresponding to the product of a sampled value with a sine function ($\frac{\sin(x)}{x}$) and with a Gaussian bell curve ($e^{-\alpha x^2}$, $\alpha \in R$).

12. (New) The device as claimed in claim 10, wherein:

said control/evaluation unit determines an abscissa value (t), at which an ordinate value of the continuous function (f(t)) reaches a predetermined limit value.

13. (New) The device as claimed in claim 12, wherein:

the predetermined limit value of the continuous function (f(t)) is a zero point, a maximum, a minimum or an inflection point.

14. (New) The device as claimed in claim 10, wherein:

said control/evaluation unit determines an abscissa value (tmax, tmin) for a maximum and/or minimum on the basis of the first derivative f'(t) of the continuous function f(t).

15. (New) The device as claimed in claim 10, wherein:

said control/evaluation unit obtains an abscissa value (tmax), at which the continuous function reaches a maximum, by a linear interpolation of the first derivative of the continuous function (f(t)) according to the following formula:

$$t_{max} = t0 - \frac{f'(t0)}{f''(t0)}$$

wherein t0 characterizes the abscissa value of a first approximation, at which a maximum or minimum is measured in the time interval (t0 - T, t0 + T), and wherein f''(t) represents the second derivative of the continuous function (f(t)).

16. (New) The device as claimed in claim 10, wherein:

said control/evaluation unit correlates, with one another, two ultrasonic measuring signals in two time ranges, interpolates the corresponding, discrete collection of correlation points by a continuous function (f(t)), and determines the abscissa value of the continuous function (f(t)), at which the ordinate value reaches a maximum value, the abscissa value being a measure for a time shift between ultrasonic measuring signals sent and received in the stream direction (S, Up) and counter to the stream direction (Down).

17. (New) The device as claimed in claim 10, wherein:

said calculating/control unit determines by means of a mathematical simulation program, in each case, an optimum value for the coefficient (α) as a function of the number of measurement points (MaxSamplei).

18. (New) The device as claimed in claim 17, further comprising:

a memory unit, in which, in each case, the optimum value for the coefficient (α) is stored as a function of the number of measurement points (MaxSample).